

REMARKS

Claims 1-10 are pending in the Application, and claims 1, 6 and 10 are independent claims. Claims 1, 2 and 6 are rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 3,756,693 to Ota ("Ota '693") in view of Japanese publication number 01086116 by Naoyuki ("Naoyuki"), and claims 3-5 and 7-10 are rejected under 35 U.S.C. §103(a) as obvious over Ota '693 in view of Naoyuki and U.S. Patent No. 3,820,517 to Ota et al. ("Ota '517").

The Applicants have carefully considered the Examiner's Office Action and respectfully request reconsideration of the rejection of claims 1-10 for the reasons discussed below.

Rejection of Claims 1, 2 and 6 Under 35 U.S.C. § 103(a)

Applicants disagree with the Office Action's conclusion that Ota '693 together with Naoyuki render Applicants' claims 1, 2 and 6 obvious because Naoyuki cannot be properly combined with Ota '693 to produce Applicants' claimed invention as a whole. In particular, Applicants disagree with the statement, at page 3, that, "[m]odifying the display as taught by Ota to include capsulized particles is well known and would be obvious to the skilled artisan," because the Office Action fails to cite any teaching that would enable one of ordinary skill in the art to so modify Ota '693 with Naoyuki. A combination of references, or reference, that do not enable one of ordinary skill in the art to practice a claim limitation can not render that limitation obvious. See, e.g., MPEP 2121.01. Furthermore, absent some teaching of how to encapsulate particles, one of ordinary skill in the art could have no reasonable expectation of successfully combining the suggestion of encapsulation of Naoyuki with Ota '693. Accordingly, Naoyuki can not be properly combined with Ota '693 to produce Applicants' claims 1, 2 or 6 because without a reasonable expectation of success, the combination of Naoyuki with Ota '693 is improper.

Specifically, either alone or in combination, Ota '693 and Naoyuki fail to enable one of ordinary skill in the art to practice the limitation of,

at least one capsule containing a suspending fluid and at least a first particle and a second particle, said first particle having a first optical property and a

first electrophoretic mobility and said second particle having a second optical property and a second electrophoretic mobility, required by Applicants' claim 1. The Office Action, at pages 2-3, states that, "...Ota is silent as to the display particles being within a capsule, the type that may be considered in plurality." Applicants maintain that enclosing particles between two electrodes does not constitute encapsulation of particles as that term is used in the application because Applicants' capsule is a structure and claim element distinct from the electrodes. Accordingly, Applicants submit that Ota '693 fails to teach or suggest the above "encapsulation" limitation of Applicants' claim 1 and that Naoyuki fails to provide this missing teaching.

Naoyuki does not enable one of ordinary skill in the art to provide capsulized particles because Naoyuki does not provide any description of how to encapsulate particles. To establish obviousness requires a showing that the prior art provides every limitation of a claim and the invention as a whole. See MPEP §§ 2142, 2143. Absent some discussion of how to perform a claim limitation, the mere mention of a limitation is simply a suggestion to try. A simple suggestion to try a limitation of a claim is insufficient to render that limitation obvious because one of ordinary skill in the art would have no reasonable expectation of successfully practicing the non-enabled limitation. As a result, Applicants submit that claim 1 is non-obvious because, either alone or in proper combination, Ota '693 and Naoyuki do not teach the above "encapsulation" limitation of claim 1. Consequently, Applicants submit that claims 2-5 are non-obvious because each depend from non-obvious base claim 1.

Likewise, either alone or in combination, Ota '693 and Naoyuki fail to enable one of ordinary skill in the art to practice the limitation of, "at least one capsule containing a suspending fluid and at least one particle," required by Applicants' claim 6. Ota '693 fails to teach or suggest this limitation of claim 6 because Ota '693 is silent as to a capsule containing suspending fluid and a display particle as set forth in Applicants' claim. Naoyuki fails to provide this missing teaching of the "at least one capsule containing a suspending fluid and at least one particle," limitation because Naoyuki does not provide any description of how to encapsulate particles. Accordingly, Applicants submit that claim 6 is non-obvious because Ota '693 and Naoyuki, either alone or in proper combination, do not teach, "at least one capsule containing a

suspending fluid and at least one particle” as set forth in Applicants’ claim 6. Consequently, Applicants submit that claims 7-9 are non-obvious because each depend from non-obvious base claim 6.

Further, Applicants note that Naoyuki is also completely silent on the encapsulation of particles with different optical properties and electrophoretic mobilities. Particles that differ in these properties typically have substantially different surface properties. Particles with different surface properties will have different interactions with the surface of a capsule. As a result, there can be no reasonable expectation that an encapsulation process or capsule material suitable for encapsulating particles with one surface property will work to encapsulate particles with different surface properties. Moreover, there can be no reasonable expectation that the behavior of particles with different surface properties will be the same within a capsule as within an unencapsulated medium (e.g., such as the medium of Ota ‘693). Thus, Naoyuki and Ota ‘693 do not render Applicants’ claims 1-5 obvious because one of ordinary skill in the art would not have a reasonable expectation of successfully modifying or combining Ota ‘693 with Naoyuki to produce the “encapsulation” limitation these claims.

Rejection of Claims 3-5 and 7-9 Under 35 U.S.C. § 103(a)

Applicants submit that claims 3-5 and 7-9, which depend either from claim 1 or 6, are non-obvious because, either alone or in combination, Ota ‘693, Naoyuki, and Ota ‘517 do not teach either the “encapsulation” limitation of claim 1 or the “at least one capsule containing a suspending fluid and at least one particle” limitation of claim 6. For the reasons set forth above, neither Ota ‘693 nor Naoyuki, either alone or in combination, teach the above limitations of claim 1 and claim 6. Ota ‘517 does not supply this missing teaching because it does not teach or suggest a “capsule,” containing the display particles, that is separate and distinct from the electrodes. Rather, in Ota ‘517, as in Ota ‘693, the electrodes themselves are the walls that enclose and contain the display particles. (See, e.g., Ota ‘517, col. 2, lines 46-54, see also Figs. 1a-5, and accompanying text, Ota ‘693, Ota, col. 2, lines 21-41, see also Figs. 1a, 2-6, and accompanying text). As a result, claims 1 and 6 are non-obvious over the art relied on in the Office Action because the cited references fail to provide the “encapsulation” limitation of claim

1 or the “at least one capsule containing a suspending fluid and at least one particle” limitation of claim 6. Consequently, claims 2-5 and 7-9 are non-obvious because these claims depend from either non-obvious base claim 1 or 6.

Further, claim 3 is non-obvious because neither Ota ‘693, Naoyuki, or Ota ‘517, either alone or in proper combination, teach “at least one red particle, at least one blue particle, and at least one green particle,” to provide the invention of claim 3 as a whole. Applicants respectfully disagree with the Office Actions statement, at page 3, that,

[a]s in claim 3, Ota (693) in view of Naoyuki teaches of the invention as applied to claim 1 above. Further, Ota et al. (517) demonstrates how the two particles can be three in number and of varying colors, column 2 lines 55-68, and since the particles can act as the primary image colorant the skilled artisan could obviously choose red, blue, and green as the particle colors well known as the prime colors in a colored spectrum display system

because the teachings of Ota ‘517 are technologically incompatible with the use of red, blue, and green particles and no other cited reference suggests such particles.

Ota ‘517 at column 2, lines 55-68, is directed towards a “photoelectrophoretic color image reproduction panel” (col. 2, lines 43-44) wherein, “[t]he [electrophoretic] material 6 consists of at least three kinds of photosensitive electrophoretic materials 6a, 6b and 6c, the colors of which are cyan, magenta and yellow, respectively, and have photosensitive response to red, green and blue light, respectively,” (col. 2, lines 58-63)(emphasis added). If Ota ‘517 is read closely, it can be seen that the particles are cyan, magenta and yellow because these colors are complimentary to the light to which the particles are photosensitive. (See, e.g., Ota ‘517, col. 3, line 55 to col. 4, line 5). Thus, the technological teachings of Ota ‘517 are addressed to choosing particles so that they have a photosensitive response to certain colors of light. (See, e.g., Ota ‘517, col. 3, line 55 to col. 4, line 5; col. 6, lines 33-66)

The Ota ‘517 teachings of particle colors that are photosensitive to a complimentary light color teaches away from, and are technologically incompatible with, red, green and blue particles because there are no colors of light (i.e., discrete, continuous electromagnetic spectrum wavelength ranges) that are complimentary to these particle colors. For example, there is no

color of light that is magenta because the color magenta is actually a combination of light from both the blue and the red portions of the electromagnetic spectrum. As is well known, red and blue are at opposite ends of the visible portion of the electromagnetic spectrum and are separated by at least the green part of the spectrum. Consequently, Ota '517 inherently teaches away from red, green and blue particles because these colors of particles will not work in the technology taught by Ota '517. Moreover, one of ordinary skill in the art would have no reasonable expectation of successfully using the teachings of Ota '517 with red, green and blue particles and, in fact, would reasonably expect use of red, green and blue particles to render Ota '517 inoperable. As a result, one of ordinary skill in the art having found Ota '517 would have no motive to use its teachings to modify any other reference to have red, green and blue electrophoretic particles, and could not do so, because the teachings of Ota '517 fundamentally will not work with red, green and blue particles. Therefore, claim 3 is non-obvious over the art relied on in the Office Action because the cited references fail to provide the limitation of, "at least one red particle, at least one blue particle, and at least one green particle," set forth in claim 3 and fail to teach the invention of claim 3 as a whole.

Rejection of Claims 4 and 7 Under 35 U.S.C. § 103(a)

Applicants submit that claims 4 and 7 are non-obvious also because, either alone or in combination, Ota '693, Naoyuki, and Ota '517 do not teach or suggest a display where the "suspending fluid is substantially transparent," as required by these claims. Applicants respectfully submit that the passages in Ota '517 cited by the Office Action as suggesting a colorless suspending fluid, in actuality teach away from a transparent suspending fluid when read closely and in the context of the entire patent. Applicants respectfully disagree with the Office Action's statement, at page 3, that, "[a]s in claims 4 and 7, Ota (517) teaches of a suspending fluid being transparent, column 4 lines 15-22, wherein colorless obviously implies transparent, column 1 lines 20-25," because these passages do not imply transparency and in fact teach that a colorless suspending fluid will not work with the teachings of Ota '517.

Although Ota '517 mentions a colorless suspending fluid, if the passages which mention such a fluid are read closely and in the context of the entire patent, it becomes apparent that Ota

‘517 actually teaches only a colored suspending fluid and actually teaches away from a colorless suspending fluid because such a suspending fluid would render Ota ‘517 inoperable. For example, as the Office Action cited, Ota ‘517 at col. 4, lines 15-22, states:

at both electrodes 8 and 9, one can observe a positive color image at the electrode 8 and a negative color image at the electrode 9. The material 6 and the suspending medium 7a both act as colorant in the reproduced image. If the suspending medium 7a is colorless, both of the areas subjected to black light or white light will have the same color, that is, a black color at both electrodes 8 and 9 in FIG. 1c.

(emphasis added). In the context of the invention and teachings of Ota ‘517 it is apparent that the above passage actually teaches away from the use of a colorless suspending fluid because if the fluid is colorless both black and white light have the same color in the image, i.e., there will be no contrast, the image will be black. Applicants further submit that to understand the teachings of Ota ‘517 with respect to the suspending fluid, that use of the passage at column 1, lines 20-25, must be done with care because this passage discusses the prior art and Ota ‘517 repeatedly makes clear that it does not practice, and in fact teaches away from, this aspect of the prior art. That the above passage from column 4 teaches away from a colorless suspending fluid becomes apparent from the remainder of the patent because Ota ‘517 repeatedly makes clear the suspending medium is colored; in fact, Ota ‘517 states: “...photosensitive electrophoretic materials which have different photosensitive responses from each other and are suspended in a white colored suspending medium...,” col. 1, lines 44-47 (emphasis added); and that: “[t]he electrophoretic suspension layer in accordance with the present invention having a white suspending medium...,” col. 9, lines 50-52 (emphasis added). The teaching that the suspending fluid is colored is found throughout Ota ‘517 when it is realized that a suspending fluid according to Ota ‘517 comprises a suspending medium and dye, see, e.g., Ota ‘517, col. 7, lines 18-21, or a suspending media and colored material, see, e.g., col. 8, lines 57-59. (See also Ota ‘517, col. 7, line 18 (teaching “colored suspending medium 7a”), col. 8, line 59 (teaching “colored suspending medium 7c”)). Consequently, Ota ‘517 fails to teach a transparent suspending fluid as set forth in Applicants’ claims 4 and 7, and in fact Ota ‘517 teaches away from such a fluid. As a result, Applicants submit that claims 4 and 7 are also non-obvious over

the art relied on in the Office Action because the cited references fail to teach, and in fact teach away from, the invention of claims 4 and 7 as a whole and fail to provide the limitation of a display where the “suspending fluid is substantially transparent,” set forth in claims 4 and 7.

Rejection of Claim 9 Under 35 U.S.C. § 103(a)

Applicants respectfully submit that claim 9, which depends from claim 6, is non-obvious also because, either alone or in combination, Ota ‘693, Naoyuki, and Ota ‘517 do not teach or suggest a display comprising, inter alia: “at least one capsule containing a suspending fluid and at least one particle...wherein application of a voltage potential to one of said at least two electrodes causes said at least one particle to migrate within said capsule, causing said capsule to change its visual state” (claim 6)(emphasis added) where “said at least one particle is substantially white,” as required by claim 9. Applicants respectfully disagree with the Office Actions conclusion, at page 4, that,

[a]s in claim 9, Ota (517) teaches of the at least one particle being white, column 7 lines 17-30, wherein the colorless suspending fluid can obviously be made white by a white particle used as a dye means to achieved [sic] the desired color, figure 3a item number 15,

because the white dye of Ota ‘517 is not an eletrophoretic particle as required by Applicants’ claim 9. It is clear that the white dye, or colored material, mentioned in Ota ‘517 at column 7, lines 17-30, and again at column 8, lines 57-59, is used as a dye to color the suspending fluid. That this colored material is used as a dye to color the suspending medium is recognized by the Office Action. This dye material clearly does not constitute electrophoretic particles because, if it did, application of a voltage potential difference across the electrodes of Ota ‘517 would cause the dye to separate from the suspending medium destroying the entire effect of coloring the suspending medium in the first place. Such an outcome is antithetical to the entire teachings of Ota ‘517 and the colored suspending fluid of Ota ‘517 in particular. (See, e.g., Ota ‘517, col. 1, lines 45-47, col. 7, lines 18-21, col. 8, lines 57-59, col. 9, lines 50-52). Accordingly, Applicants submit that claim 9 is also non-obvious over the art relied on in the Office Action because the cited references fail to teach claim 9 as a whole and the substantially white electrophoretic particle limitation of that claim.

Rejection of Claim 10 Under 35 U.S.C. § 103(a)

Applicants submit that claim 10 is non-obvious because neither Ota '693, Naoyuki, nor Ota '517 teach or suggest colored electrodes or the use of a plurality of electrodes of differing colors as required by claim 10. The electrophoretic display of Applicants' independent claim 10 comprises "colored electrodes" not simply electrodes that appear colored because they are viewed through a color overlay. In fact, Applicants' claim 10 makes clear that the extra element represented by an overlay is not what imparts color to an electrode, but rather the electrodes themselves are colored:

10. An electrophoretic display comprising:...
 - a cyan-colored electrode disposed adjacent said capsule;
 - a magenta-colored electrode disposed adjacent said capsule, said magenta-colored electrode spaced apart from said cyan-colored electrode;
 - a yellow-colored electrode disposed adjacent said capsule, said yellow-colored electrode spaced apart from said cyan-colored electrode and said magenta-colored electrode; and
 - a white electrode adjacent said capsule, said white electrode spaced apart from said cyan-colored electrode, said yellow-colored electrode, and said magenta-colored electrode,wherein...

(emphasis added). Accordingly, the "colored electrode" of the present application, and as set forth in claim 10, is itself colored.

Naoyuki does not teach or suggest colored electrodes because it makes no mention of color, with respect to electrodes or particles, and Applicants do not believe the Office Action asserts otherwise. Applicants, however, must respectfully disagree with the conclusory assertions at page 4 that,

[a]s in claim 10, Ota (693) in view of Naoyuki teaches of the invention as applied to claims 1-9 above, including the particle capsulized multicolored electrophoretic display, whose particles have different mobilities according to the voltage bias on the colored coated electrodes. Further, Ota (517) teaches of particles of the various colors, including cyan, magenta, yellow, and white, while also teaching of colored electrodes used to hide the particles in a particular voltage-bias display state, column 9, lines 1-37.

Applicants must disagree with the above assertions because they are unsupported by either citation or reasoned argument. Specifically, Applicants' disagree because: (1) the portions of

Ota '517 cited in the Office Action make no mention of either a colored electrode or hiding of particles by an electrode; (2) Applicants can find no other portion of Ota '517 that mentions either a colored electrode or hiding of particles by an electrode; (3) the assertion that Ota '693 teaches colored electrodes is unsupported by any citation to Ota '693; and (4) Ota '693 does not teach or suggest colored electrodes and in fact teaches away from such.

Applicants respectfully disagree with the Office Action's conclusory assertion at page 4 that Ota '517 teaches colored electrodes, when the Office Action states, "[f]urther, Ota (517)...also teaching of colored electrodes used to hide the particles in a particular voltage-bias display state, column 9, lines 1-37," because nowhere in column 9 is either a colored electrode mentioned or any hiding of particles by an electrode mentioned.

To the extent the Office Action meant to refer to some other portion of Ota '517 to support the conclusion of, "Ota (517)...also teaching of colored electrodes," Applicants can find no portion of Ota '517 that supports the Office Actions' conclusion. At most, Applicants note that Ota '517 at column 7, line 66 to column 8, line 48, discusses a "colored porous layer 12" with pores that, "must be large enough to pass the particles of the electrophoretic material 6 therethrough and small enough to hide the electrophoretic material 6 from sight." (quoting col. 8, lines 39-42). However, there is no suggestion or indication from either the text or drawings of Ota '517 that this porous layer 12 is an electrode. Rather, Ota '517 figures 2a, 2b and accompanying text show that porous layer 12 is not an electrode. Accordingly, Applicants submit that Ota '517 does not teach or suggest colored electrodes because, by any reading, Ota '517 does not even mention colored electrodes.

The Office Action has provided no citation, reasoned statement or argument to support the conclusory assertion at page 4 in the Office Action that,

Ota (693) in view of Naoyuki teaches of the invention as applied to claims 1-9 above, including the particle capsulized multicolored electrophoretic display, whose particles have different mobilities according to the voltage bias on the colored coated electrodes.

Applicants' must disagree with this assertion because Ota '693 does not disclose, teach, or suggest colored electrodes or a plurality of electrodes of differing colors as set forth in claim 10

of the present invention. Rather, Ota '693 discloses only color overlays, not colored electrodes. (See, e.g., Ota '693, Figs. 1a and 1b, item 50). Accordingly, Ota '693 does not teach colored electrodes because the overlay of Ota '693 does not "color" the underlying electrode. The overlay of Ota '693 does not "color" the underlying electrode because the color of the electrode is the same after the overlay is removed as it was before. Accordingly, the overlays of Ota do not provide "colored electrodes" as that term is used in the application and claim 10 because they do not change the color of the electrode itself.

Moreover, Ota '693 teaches away from colored electrodes, and that the overlays are not electrodes, when Ota '693 explicitly teaches that:

At any rate, any pattern can be displayed by providing a colored layer 50 of a desired pattern at the electrode 8 without using an electrode of a desired pattern.

(Ota '693, col. 3, lines 8-11)(emphasis added);

Electrical resistance of the colored layer 50 is important when [it] is interposed between the transparent electrode and the suspension layer...so that the electric field applied between the electrodes is imposed mainly across the suspension layer.

(Ota '693, col. 7, lines 35-47); and, "The colored layer 50...may be electrically insulating." (Ota '693, col. 7, lines 47-49). Accordingly, Ota '693 does not disclose, teach, or suggest colored electrodes or provide any motivation to one of ordinary skill in the art to seek a colored electrode instead of the overlays taught by Ota '693.

In sum and for the reasons set forth above, Applicants respectfully submit that claim 10 is non-obvious because the references relied on by the Office Action fail to teach, and in fact teach away from, the invention of claim 10 as a whole and the limitation of colored electrodes as set forth in this claim.


CONCLUSION

Applicants request that the Examiner reconsider the application and claims in light of the foregoing Response, and respectfully submit that the claims are in condition for allowance. If, in the Examiner's opinion, a telephonic interview would serve to clarify issues and expedite the

favorable prosecution of the present application, the undersigned attorney would welcome the opportunity to discuss any outstanding issues, and to work with the Examiner toward placing the application in condition for allowance.

Respectfully submitted,

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